NEW SOURCE CONSTRUCTION PERMIT
and MINOR SOURCE OPERATING PERMIT
OFFICE OF AIR QUALITY

Putnam Energy Center LLC
7816 S. US 231
Cloverdale, Indiana 46120

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 133-12915-00003	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date:

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates an electric generating station.

Authorized Individual:	Terrence A. O'Malley
Source Address:	7816 S. US 231, Cloverdale, Indiana 46120
Mailing Address:	12 Salt Creek Lane, # 410, Hinsdale, IL 60521
Phone Number:	(630) 920-9990
SIC Code:	4911
County Location:	Putnam
County Status:	Attainment for all criteria pollutants
Source Status:	Minor Source, under PSD Rules; Minor Source, Section 112 of the Clean Air Act

A.2 Emissions units and Pollution Control Equipment Summary

This stationary source is approved to construct and operate the following emissions units and pollution control devices:

(a) Ten (10) natural gas fired simple cycle combustion turbines (GE LM 6000) with no backup fuel, designated as 1 through 10, each with an anticipated maximum heat input capacity of 421.5 MMBtu/hr higher heating Value (HHV). Each turbine has a maximum nominal output of 50MW, with water injection for Nitrogen Oxide emissions control, and exhausts to ten (10) stacks designated as 1 through 10.

(b) Ten (10) cooling towers used to transfer the heat from the chillers, which are used to cool the inlet air of the Combustion Turbine Generators (CTG), designated as 11 through 20, each with a maximum water flow rate of 1,800 gallons per hour.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source will be required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is an affected source under Title IV (Acid Disposition Control) of the Clean Air Act, as defined by 326 IAC 2-7-1(3);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 Applicability)

A.4 Acid Rain Permit Applicability [40 CFR Part 72.30]

This stationary source shall be required to have a Phase II, Acid Rain permit by 40 CFR Part 72.30 (Applicability) because:

(a) The combustion turbines are new units under 40 CR Part 72.6.

(b) The source cannot operate the combustion units until their Phase II, Acid Rain permit has been issued.

(c) The source will operate the combustion units in compliance with the acid rain provisions.

SECTION B GENERAL CONSTRUCTION CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1.1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

B.1 Permit No Defense [IC 13]

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2, and 326 IAC 2-1.1-1 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.4 Revocation of Permits [326 IAC 2-1.1-9(5)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article. If construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.5 Modification to Permit [326 IAC 2]

Notwithstanding the Section B condition entitled “Minor Source Operating Permit”, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

B.6 Minor Source Operating Permit [326 IAC 2-6.1]

This document shall also become a minor source operating permit pursuant to 326 IAC 2-6.1 when, prior to start of operation, the following requirements are met:

(a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section.

(1) If the Affidavit of Construction verifies that the facilities covered in this Construction Permit were constructed as proposed in the application, then the facilities may

begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.

(2) If the Affidavit of Construction does not verify that the facilities covered in this Construction Permit were constructed as proposed in the application, then the Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section prior to beginning operation of the facilities.

(b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(c) Upon receipt of the Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section, the Permittee shall attach it to this document.

(d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).

(e) Pursuant to 326 IAC 2-7-4(a)(1)(A)(ii) and 326 IAC 2-5.1-4, the Permittee shall apply for a Title V operating permit within twelve (12) months of the date on which the source first meets an applicability criterion of 326 IAC 2-7-2.

B.7 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60.7, Any owner or operator shall furnish the Administrator and IDEM written notification or, if acceptable to both the Administrator and the owner or operator of a source, electronic notification, as follows:

(a) Commencement of construction date (no later than 30 days after such date);

(b) Actual start-up date (within 15 days after such date); and

(c) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM-OAQ. The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION C **SOURCE OPERATION CONDITIONS**

Entire Source

C.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]

(a) The potential to emit of nitrogen oxides (NOx), carbon monoxide (CO), Particulate Matter (PM), Particulate Matter Less than 10 Microns (PM_{10}), Sulfur Dioxide (SO_2) and Volatile Organic Compounds (VOC) for the facilities listed in this construction permit, are greater than 250 tons per year. The potential to emit, of the above listed pollutants, is limited to less than 250 tons per year. Therefore, the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 do not apply.

(b) Any change or modification which may increase potential to emit to 250 tons per year from this source, shall cause this source to be considered a major source under PSD, 326 IAC 2-2 and 40 CFR 52.21, and shall require approval from IDEM, OAQ prior to making the change.

C.2 Preventive Maintenance Plan [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) after commencement of operation, including the following information on each emissions unit:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM, OAQ, upon request and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.3 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

(a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015

Indianapolis, Indiana 46206-6015

Any such application should be certified by the "authorized individual" as defined by 326 IAC 2-1.1-1.

(c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

C.4 Source Modification [326 IAC 2-7-10.5]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-10.5 whenever the Permittee seeks to construct new emissions units, modify existing emissions units, or otherwise modify the source.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule.

C.5 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;

(c) Inspect, at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;

(d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

C.6 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]

Pursuant to [326 IAC 2-6.1-6(d)(3)] :

(a) In the event that ownership of this source is changed, the Permittee shall notify IDEM, OAQ, Permits Branch, within thirty (30) days of the change.

(b) The written notification shall be sufficient to transfer the permit to the new owner by an notice-only change pursuant to 326 IAC 2-6.1-6(d)(3).

(c) IDEM, OAQ shall issue a revised permit.

The notification which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

C.7 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.8 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.9 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using good engineering practices (GEP) pursuant to 326 IAC 1-7-3.

Testing Requirements

C.10 Performance Testing [326 IAC 3-6]

(a) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality

100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Compliance Monitoring Requirements

C.11 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.12 Maintenance of Monitoring Equipment [IC 13-14-1-13]

(a) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem. To the extent practicable, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less frequent than required in Section D of this permit until such time as the monitoring equipment is back in operation. In the case of continuous monitoring, supplemental or intermittent monitoring of the parameter should be implemented at intervals no less than one (1) hour until such time as the continuous monitor is back in operation.

(b) The Permittee shall install, calibrate, quality assure, maintain, and operate all necessary monitors and related equipment. In addition, prompt corrective action shall be initiated whenever indicated.

C.13 Monitoring Methods [326 IAC 3]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

C.14 Malfunction Emission Reduction Program [326 IAC 1-6]

(a) The Permittee is required to submit a malfunction emission rate reduction program within one-hundred eighty (180) days after the commencement of operation. The program shall include, but not limited to, the normal operating emission rate and the program proposed to reduce emissions in the event of a malfunction to an emission rate that will not contribute to the cause of the violation of the ambient air quality standards established in 326 IAC 1-3. The program shall be based on the best estimates of type and number of startups, shutdowns, and malfunctions experienced during normal operation of the facility or

emission control device and the scope and duration of such conditions. This program may be subject to review and approval by the Commissioner.

(b) For each compliance monitoring condition of this permit, appropriate response steps shall be taken when indicated by the provisions of that compliance monitoring condition. Failure to perform the actions detailed in the compliance monitoring conditions or failure to take the response steps within the time prescribed in the Malfunction Emission Reduction Program, shall constitute a violation of the permit unless taking the response steps set forth in the Malfunction Emission Reduction Program would be unreasonable.

(c) After investigating the reason for the excursion, the Permittee is excused from taking further response steps for any of the following reasons:

(1) The monitoring equipment malfunctioned, giving a false reading. This shall be an excuse from taking further response steps providing that prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for an administrative amendment to the **permit,** and such request has not been denied or;

(3) An automatic measurement was taken when the process was not operating; or

(4) The process has already returned to operating within "normal" parameters and no response steps are required.

(d) Records shall be kept of all instances in which the compliance related information was not met and of all response steps taken.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected emissions unit while the corrective actions are being implemented. IDEM, OAQ shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAQ within thirty (30) days of receipt of the notice of deficiency. IDEM, OAQ reserves the authority to use enforcement activities to resolve noncompliant stack tests.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate permit conditions may be grounds for immediate revocation of the permit to operate the affected emissions unit.

The documents submitted pursuant to this condition do not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Record Keeping and Reporting Requirements

C.16 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.17 Annual Emission Statement [326 IAC 2-6]

(a) The Permittee shall submit an annual emission statement certified pursuant to the requirements of 326 IAC 2-6, that must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual emission statement shall meet the following requirements:

(1) Indicate actual emissions of criteria pollutants from the source, in compliance with 326 IAC 2-6 (Emission Reporting);

(2) Indicate actual emissions of other regulated pollutants from the source, for purposes of Part 70 fee assessment.

(b) The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31. The annual emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(c) The annual emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

The submittal by the Permittee does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1.

C.18 Monitoring Data Availability [326 IAC 2-6.1-2] [IC 13-14-1-13]

(a) With the exception of performance tests conducted in accordance with Section C-Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.19 General Record Keeping Requirements [326 IAC 2-6.1-2]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location, or at an accessible location such that the records could be made available within one (1) hour upon request, and provided that OAQ is notified in writing prior, for a minimum of three (3) years and available upon the request of an IDEM, OAQ representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this permit;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Malfunction Emission Reduction Program required by Section C - Malfunction Emission Reduction Program, of this permit, and whether a deviation from a permit condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.

(d) All record keeping requirements not already legally required shall be implemented when operation begins.

C.20 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

(a) To affirm that the source has met all the compliance monitoring requirements stated in this permit the source shall submit a Quarterly Compliance Monitoring Report. Any deviation from the requirements and the date(s) of each deviation must be reported. The Compliance Monitoring Report shall include the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(d) Unless otherwise specified in this permit, any quarterly report shall be submitted within thirty (30) days of the end of the reporting period. The reports do not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:

(1) An excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or

(2) A malfunction as described in 326 IAC 1-6-2; or

(3) Failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.

(4) Failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response step when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring is a deviation.

(f) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.

(g) The first report shall cover the period commencing on the date of operation and ending on the last day of the reporting period.

C.21 Annual Notification [326 IAC 2-6.1-5(a)(5)]

(a) Annual notification shall be submitted to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.

(b) Noncompliance with any condition must be specifically identified. If there are any permit conditions or requirements for which the source is not in compliance at any time during the year, the Permittee must provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be, achieved. The notification must be signed by an authorized individual.

(c) The annual notice shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in the format attached no later than March 1 of each year to:

Compliance Data Section, Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, IN 46206-6015

(e) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

(a) Ten (10) natural gas fired simple cycle combustion turbines (GE LM6000) with no backup fuel, designated as 1 through 10, each with an anticipated maximum heat capacity of 421.5 MMBtu/hr higher heating value (HHV). Each turbine has a maximum nominal output of 50MW, with water injection for Nitrogen Oxide emissions control, and exhausts to ten (10) stacks designated as 1 through 10.

(b) Ten (10) cooling towers used to transfer the heat from the chillers, which are used to cool the inlet air of the Combustion Turbine Generators (CTG), designated as 11 through 20, each with a maximum water flow rate of 1,800 gallons per hour.

The information describing the source contained in this Section D.1 is descriptive information, and does not constitute federally enforceable conditions.

D.1.1 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The potential to emit of NOx and CO from the ten (10) combustion turbines, and ten (10) cooling towers shall be limited to less than 250 tons per twelve (12) consecutive months per pollutant, rolled on a monthly basis. This limit is required to limit the potential to emit of NOx, CO, SO_2, PM, PM_{10} and VOC to less than 250 tons per twelve (12) consecutive month period. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.1.2 40 CFR Part 60, Subpart GG Applicability (Stationary Gas Turbines)

(a) The ten (10) combustion turbines are subject to 40 CFR Part 60, Subpart GG because the heat input at peak load is equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

(b) Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$STD = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO_x emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

(2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight.

D.1.3 326 IAC 2-4.1-1 (New Source Toxics Control)

The formaldehyde emission rate from each stack shall not exceed 0.00071 lb/MMBTU. This emission rate in combination with the emission limitations specified in Condition D.1.1, shall ensure that the single HAPs emissions do not exceed 10 tons per year and the combination HAPs do not exceed 25 tons per year.

(a) The formaldehyde potential to emit shall be less than ten (10) tons per twelve (12) consecutive month period, rolled on a monthly basis.

(b) The combination of HAPs shall be less than twenty-five (25) tons per twelve (12) consecutive month period, rolled on a monthly basis.

D.1.4 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

D.1.5 Carbon Monoxide Emission Limitations [326 IAC 9-1]

This source is subject to 326 IAC 9-1 because it is a stationary source of CO emissions commencing operation after March 21, 1972. There are no applicable CO emission limits, under this state rule, established for this type of operation.

Compliance Determination Requirements

D.1.6 Testing Requirements [326 IAC 2-1.1-5][40 CFR Part 60.8][326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5 the Permittee shall conduct a performance test, not later than one-hundred and eighty (180) days after a facility start-up or monitor installation, on the combustion turbines' exhaust stacks (designated as 01 through 10) in order to certify the continuous emission monitoring system for NOx and CO.

(b) Within sixty (60) days after achieving maximum production rate, but no later than one-hundred and eighty (180) days after initial start-up, the Permittee shall conduct NOx and SO_2 stack tests for each turbine utilizing methods as approved by the Commissioner. These tests shall be performed in accordance with 40 CFR Part 60.335 and Section C - Performance Testing, in order to document compliance with Conditions D.1.2.

(c) Within sixty (60) days after initial start-up, but no later than one-hundred and eighty (180) days after initial start-up, the Permittee shall perform formaldehyde stack tests for each turbine (stacks designated as 01 through 10) utilizing methods as approved by the Commissioner when operating at loads of 50%, 75% and 100%. These tests shall be performed in accordance Section C - Performance Testing, in order to verify the formaldehyde emission rate as specified in Condition D.1.3.

(d) IDEM may require compliance testing at any specific time when necessary to determine if the source is in compliance. If testing is required by IDEM, compliance with the NOx and CO limits specified in Condition D.1.1, shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.1.7 40 CFR Part 60, Subpart GG Compliance Requirements (Stationary Gas Turbines)

Pursuant to 40 CFR Part 60, Subpart GG (Stationary Gas Turbines), the Permittee shall monitor the nitrogen and sulfur content of the natural gas on a daily basis as follows:

(a) install a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine, as required by 40 CFR 60.334(a);

(b) monitor the sulfur content and nitrogen content of the fuel being fired in the turbine, as required b 40 CFR 60.334(b);

(c) and report periods of excess emissions, as required by 40 CFR 334(c).

Owners, operators or fuel vendors may develop custom schedule for determination of the nitrogen and sulfur content based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator and IDEM before they can be used to comply with the above requirements

D.1.8 Continuous Emission Monitoring System (CEMS) [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5-1(d)(1), the owner or operator of a new source with an emission limitation or permit requirement established under 326 IAC 326 IAC 2-5.1-3 and 2-6.1 shall be required to install a continuous emissions monitoring system or alternative monitoring plan as allowed under the Clean Air Act and 326 IAC 3-5.

(b) For NOx and CO, the Permittee shall install, calibrate, certify, operate and maintain a continuous emissions monitoring system for stacks designated as 01 through 10, in accordance with 326 IAC 3-5-2 and 3-5-3.

(1) The continuous emission monitoring system (CEMS) shall measure NOx and CO emissions rates in pounds per hour. The use of CEMS to measure and record the NOx and CO hourly emission rates, is sufficient to demonstrate compliance with the annual limits established in the Condition D.1.1.

(2) The Permittee shall submit to IDEM, OAQ, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

(3) The Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(c) In instances of downtime, the source shall use EPA's AP-42 emission factors for stationary gas turbines, to demonstrate compliance with the CO emission limit and use the Missing Data Substitution Procedures outlined in 40 CFR Part 75, Subpart D to demonstrate compliance with the NOx emission limit, both established under Condition D.1.1.

(d) The source may submit to OAQ alternative emission factors based on the source's CEMS data, to use in lieu of the vendor guaranteed emission factors in instances of downtime. The alternative emissions factors must be approved by OAQ prior to use in calculating emissions for the limitations established in this construction permit. The alternative emission factors shall be based upon collected monitoring and test data supplied from an approved continuous emission monitoring system and/or approved performance tests. In the event that the information submitted does not contain sufficient data to establish appropriate emission factors, the source shall continue to collect data until appropriate emission factors can be established.

Record Keeping and Reporting Requirements [326 IAC 2-1-3]

D.1.9 Record Keeping Requirements

(a) To document compliance with Condition D.1.1 and D.1.3, the Permittee shall maintain records of the following:

(1) amount of natural gas combusted (in MMCF) per unit (turbine) during each month; and

(2) the heat input capacity of each unit;

(3) the percent sulfur content of the natural gas (if other than pipeline quality natural gas which is defined as natural gas that is provided by a supplier through a pipeline; 40 CFR Part 72.2)

(4) the emission rates of NOx and CO in pounds per hour (based on CEMS data); and

(5) the Permittee shall maintain records required under 326 IAC 3-5-6 at the source in a manner so that they may be inspected by the IDEM, OAQ, or the U.S. EPA., if so requested or required.

(b) To document compliance with D.1.2, the source shall maintain records of the natural gas analyses, including the sulfur and nitrogen content of the gas, for a period of three (3) years.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.10 Reporting Requirements

(a) The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for NO_x and CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with Section C - General Reporting Requirements of this permit.

(b) A quarterly summary of the information to document compliance with D.1.1, D.1.3 and D.1.7 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

(c) The Permittee shall report periods of excess emissions, as required by 40 CFR 60.334(c)

(d) These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and shall be in accordance with Section C - General Reporting Requirements of this permit.

Indiana Department of Environmental Management
Office of Air Quality
Compliance Data Section

Quarterly Report

Company Name: **Putnam Energy Center, LLC**
Location: **7816 S. US 31, Cloverdale, Indiana 46120**
Permit No.: **133-12915-00003**
Source: **Ten (1) combustion turbines**
Pollutant: **CO**
Limit: **Less than 250 tons per twelve (12) consecutive month period**

Year: _____

Month	CO Emissions (tons/ month)	Total CO Emissions for previous eleven months (tons/ month)	Total CO Emissions for twelve month period (tons)
–	Ten (10) turbines	--	--
1			
2			
3			

☐ **No deviation occurred in this quarter.**

☐ **Deviation/s occurred in this quarter.**
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Quality
Compliance Data Section

Quarterly Report

Company Name: Putnam Energy Center, LLC
Location: 7816 S. US 31, Cloverdale, Indiana 46120
Permit No.: 133-12915-00003
Source: Ten (10) combustion turbines
Pollutant: NOx
Limit: Less than 250 tons per twelve (12) consecutive month period

Year: _____

Month	NOx Emissions (tons/ month)	Total NOx Emissions for previous eleven months (tons/ month)	Total NOx Emissions for twelve month period (tons)
–	Ten (10) turbines	–	--
1			
2			
3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION

MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Company Name:	Putnam Energy Center, LLC
Address:	7816 S. US 31
City:	Cloverdale, Indiana 46120
Phone #:	(630) 920-9990
MSOP #:	133-12915-00003

I hereby certify that Putnam Energy Center, LLC Electric Generating Station is ☐ still in operation.
☐ no longer in operation.

I hereby certify that Putnam Energy Center, LLC Electric Generating Station is ☐ in compliance with the requirements of MSOP 133-12915-00003.
☐ not in compliance with the requirements of MSOP 133-12915-00003.

Authorized Individual (typed):
Title:
Signature:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?_____, 25 TONS/YEAR SULFUR DIOXIDE ?_____, 25 TONS/YEAR NITROGEN OXIDES?_____, 25 TONS/YEAR VOC ?_____, 25 TONS/YEAR HYDROGEN SULFIDE ?_____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?_____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?_____, 25 TONS/YEAR FLUORIDES ?_____, 100TONS/YEAR CARBON MONOXIDE ?_____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?_____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?_____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?_____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?_____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: Putnam Energy Center, LLC _PHONE NO. (630) 920-9990
LOCATION: (CITY AND COUNTY): Cloverdale/Putnam
PERMIT NO. 133-12915 AFS PLANT ID: 133-00003 AFS POINT ID: _____ INSP:_____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON:_____
_____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 2001 _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 20____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER:_____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____
_____

MEASURES TAKEN TO MINIMIZE EMISSIONS:_____
_____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES:_____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS:_____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT:_____
INTERIM CONTROL MEASURES: (IF APPLICABLE)_____
_____
_____

MALFUNCTION REPORTED BY:_____TITLE:_____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY:_____DATE:_____TIME:_____

***SEE PAGE 2**

PAGE 1 OF 2

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

***Essential services are determined on a case by case basis by the Indiana Department of Environmental Management. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.**

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for New Source Construction and Minor Source Operating Permit

Source Name:	Putnam Energy Center, LLC
Source Location:	7816 South U.S. 231
County:	Putnam
SIC Code:	4911
Operation Permit No.:	133-12915-00003
Permit Reviewer:	Sherry Harris

On April 9, 2001 the Office of Air Quality (OAQ) had a notice published in the Banner Graphic, Greencastle, Indiana, stating that Putnam Energy Center, LLC had applied for a construction permit to construct and operate an electric generating plant. The notice also stated that OAQ proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On April 4, 2001, Ms. Shari Rubin submitted comments on the proposed construction and operating permit. The summary of the comments and corresponding responses is as follows:

The following comments were presented by Ms. **Shari Rubin**:

Comment 1: I am very concerned about the contamination of the air quality in my area. I have lived in several different places around the country and state, in close proximity to such facilities as Putnam Energy Center is proposing to build and have been appalled at the odor that is generated. Aside from the obvious problem of an unpleasant smell, I am very worried about health problems that occur when these fumes are inhaled. I have been employed as a Respiratory Therapist for over 22 years and have seen the detrimental effects this air pollution causes. Many individuals, especially children and those with respiratory problems, suffer from allergic or asthmatic reactions. Also, I have read many long-term medical studies linking hazardous air pollution to many forms of cancer.

The location the Putnam Energy Center has chosen to build its facility is only 3 miles from one of the largest high schools in the county, South Putnam County High School, and it is even closer to elementary, middle and high schools in the Cloverdale area. This should obviously be a deterrent to having such a hazardous facility emitting toxic substances such as NOx into the air.

Response 1: The OAQ works to safeguard the quality of Indiana's air through implementing the requirements of the Clean Air Act, developing state rules governing air quality standards, evaluating and issuing permits for construction and operation, and monitoring Indiana's air quality. Together these programs continue to reduce the levels of air pollution across the state every year. Rules have been enacted that require reductions of particulate matter, lead, carbon monoxide, sulfur dioxide, and ozone pre-cursors in many areas of the state where air quality did not meet the health-based air quality standards. These rules brought 7 counties into compliance with the standards for particulate matter, 2 counties into compliance with the standard for lead, 2 counties into compliance for carbon monoxide, 4 counties into compliance for sulfur dioxide, and 3 counties into compliance with the one-

hour ozone standard. Several ongoing programs that the OAQ implements to meet ozone standards state-wide, and implement the National Emissions Standards for Hazardous Air Pollutants.

Any new source of air pollution requires a permit from the OAQ. Larger sources of air pollution face more strict control requirements. During new source review the OAQ evaluates the existing rules to ensure that the new source will not cause or contribute to health-based standards. In particular, an air quality analyses conducted, demonstrates that air quality in the vicinity of the plant will continue to comply with the National Ambient Air Quality Standards (NAAQS). The OAQ utilizes a computer model, which is approved by the USEPA, to predict what impact the emissions from the plant will have on the air that the community breathes, and compares them to the standards that are established to protect public health. Based on their air quality analysis, no significant impact on public health or welfare are expected to occur as a result of the emissions from the proposed facility.

Additional limitations are required when necessary to protect these standards. The permit also adds case-by-case provisions for monitoring compliance with all emission limitations set forth in the permit. The permit identifies the applicable requirements, describes what is necessary to comply with those requirements, and establishes monitoring, record keeping, and reporting requirements to demonstrate compliance on a day-to-day basis.

IDEM does not have specific authority to regulate odor.

Comment 2: My second concern is that of the result of acid rain that would be generated by such air pollution. Putnam County is a major agricultural area: I would estimate 50-60% of all income is generated from farming. What will be the decline in revenue for farmers of corn and soybeans if their crops are destroyed or damaged by pollution from acid rain as a result of this facilities? It seems a more industrialized community would be more suitable for this type of electrical generating plant, as to not jeopardize a large area of existing farmland that supports the county.

I would like to know what the purpose of this plant is going to serve in my area? I have electrical service from a rural electric coop located approximately 20 miles from my home and I know most of my neighbors are supplied by similar organizations. I would like to know where the electricity that is generated is going to be used and if it is not to benefit my community, then it should be built elsewhere. My area should not be exposed to such a hazardous facility whose product will be sold far away.

Response 2: The 1990 Clean Air Act created what has titled the acid deposition control program. The purpose of this program was to dramatically reduce the emissions of the pollutants that cause acid rain and to reduce the effects of acid rain. Currently, emissions of sulfur dioxide, for instance, have been reduced by ten million tons across the United States. The second phase of the acid rain program affected emissions of oxides of nitrogen. There are not any provisions of this program that apply to this plant. But with respect to SO_2, sulfur dioxide, there is essentially a nationwide cap that emissions cannot increase above. So even when a new plant is permitted, the program is set up to be a market-based program that relies on trading, the plant has to buy SO_2 emissions in order to operate.

Therefore, if some power plants were required to reduce their emissions from 1,000 tons to 500 tons, the plant might reduce down to 400 tons, and the plant would have a hundred tons of credit they could sell to another plant. Any SO_2 emissions that are emitted by this plant will require Putnam Energy Center, LLC to purchase an equal amount of credits from

another plant. The Clean Air Act addresses this national problem by greatly reducing SO_2 emissions across the country. The program was not set up to look at any local effects that an individual plant would have. By reducing emissions by a very large amount across the country, then the impact of acid rain has been diminished.

The purpose of the proposed construction is to supply electrical service during periods of high energy demands, which is usually when the temperatures are extremely cold in the winter, and extremely hot in the summer.

In terms of the location of the merchant plans, the jurisdiction falls under the local authorities, not IDEM.

The public hearing was held on May 17, 2001, at 6:pm, in the meeting room of the Cloverdale Town Hall, 154 S. Main Street, Cloverdale, Indiana.

There was only one comment presented at the at the public hearing, it was presented by Donald K. Walton (Putnam County Commissioner):

Comment 1: Speaking for many people in Cloverdale, I feel that Putnam Energy has kept us well informed. We think that the project will be good for Cloverdale, considering the shortages in electricity that other states are experiencing. We feel satisfied that Putnam energy has represented themselves well, and we are happy with what has transpired between us and Putnam Energy.

Upon further review, IDEM makes the following changes to the Permit

Condition A.2

(b) Ten (10) cooling towers used to transfer the heat from the chillers, which are used to cool the inlet air of the Combustion Turbine Generators (CTG), designated as 11 through 20, each with a maximum water flow rate of 1,800 gallons per ~~minute~~ **hour.**

Section D.1

(a) Ten (10) natural gas fired simple cycle combustion turbines (GE LM6000) with no backup fuel, designated as 1 through 10, each with an anticipated maximum heat capacity of 421.5 MMBtu/hr higher heating value (HHV). Each turbine has a maximum nominal output of 50MW, with water injection for Nitrogen Oxide emissions control, and exhausts to ten (10) stacks designated as 1 through 10.

(b) Ten (10) cooling towers used to transfer the heat from the chillers, which are used to cool the inlet air of the Combustion Turbine Generators (CTG), designated as 11 through 20, each with a maximum water flow rate of 1,800 gallons per ~~minute~~ **hour.**

The information describing the source contained in this Section D.1 is descriptive information, and does not constitute federally enforceable conditions.

Indiana Department of Environmental Management
Office of Air Quality
Compliance Data Section

Quarterly Report

Company Name: **Putnam Energy Center, LLC**
Location: **7816 S. US 31, Cloverdale, Indiana 46120**
Permit No.: **133-12915-00003**
Source: **Ten (1) combustion turbines, ~~ten (10) cooling towers~~**
Pollutant: **CO**
Limit: **Less than 250 tons per twelve (12) consecutive month period**

Year: _____

Month	CO Emissions (tons/ month)		Total CO Emissions for previous eleven months (tons/ month)	Total CO Emissions for twelve month period (tons)
–	Ten(10) turbines	~~Ten (10) cooling towers~~	--	--
1				
2				
3				

☐ **No deviation occurred in this quarter.**

☐ **Deviation/s occurred in this quarter.**
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Quality
Compliance Data Section

Quarterly Report

Company Name: **Putnam Energy Center, LLC**
Location: **7816 S. US 31, Cloverdale, Indiana 46120**
Permit No.: **133-12915-00003**
Source: **Ten (10) combustion turbines, ~~ten (10) cooling towers~~**
Pollutant: **NOx**
Limit: **Less than 250 tons per twelve (12) consecutive month period**

Year: _____

Month	NOx Emissions (tons/ month)	Total NOx Emissions for previous eleven months (tons/ month)	Total NOx Emissions for twelve month period (tons)
–	Ten (10) turbines	~~Ten (10) cooling towers~~	–	--
1				
2				
3				

☐ **No deviation occurred in this quarter.**

☐ **Deviation/s occurred in this quarter.**
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Technical Support Document

The OAQ prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision.

The IDEM, OAQ has made the following clarifications, additions or changes to the Technical Support of the proposed construction permit:

Clarification 1:

(a) The Potential to emit (as defined in 326 IAC 2-7-1 (29) of any single HAP is equal to or greater than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1 (29) of a combination HAPS is greater than or equal to twenty-five (25) tons per year. However, the limited potential to emit of a single HAP is less than ten (10) tons per year and the limited potential to emit of the combination HAPs is less than twenty-five (25) tons per year, respectively. ~~Therefore, the source is not subject to the provisions of 326 IAC 2-7 (Part 70 Permits).~~

Clarification 2:

(b) Ten (10) cooling towers used to transfer the heat from the chillers, which are used to cool the inlet air of the Combustion Turbine Generators (CTG), designated as 11 through 20, each with a maximum water flow rate of 1,800 gallons per ~~minute~~ **hour**.

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for New Source Construction and Minor Source Operating Permit

Source Background and Description

Source Name:	Putnam Energy Center LLC
Source Location:	7816 South US 231
County:	Putnam
Construction Permit No.:	CP-133-12915-00003
SIC Code:	4911
Permit Reviewer:	Sherry Harris

The Office of Air Management (OAQ) has reviewed an application from Putnam Energy Center, LLC, relating to the construction and operation of an electric generating station.

Emission Units and Pollution Control Equipment

The source consists of the following emission units and pollution control devices:

(a) Ten (10) natural gas fired simple cycle combustion turbines (GE LM 6000) with no backup fuel, designated as 1 through 10, each with an anticipated maximum heat capacity of 421.5 MMBtu/hr higher heating Value (HHV). Each turbine has a maximum nominal output of 50MW, with water injection for Nitrogen Oxide emissions control, and exhausts to ten (10) stacks designated as 1 through 10.

(b) Ten (10) cooling towers used to transfer the heat from the chillers, which are used to cool the inlet air of the Combustion Turbine Generators (CTG), designated as 11 through 20, each with maximum water flow rate of 1,800 gallons per minute.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
1	Combustion Turbine Generator (CTG)	50	11	570,110	837
2	Combustion Turbine Generator	50	11	570,110	837
3	Combustion Turbine Generator	50	11	570,110	837
4	Combustion Turbine Generator	50	11	570,110	837

5	Combustion Turbine Generator	50	11	570,110	837
6	Combustion Turbine Generator	50	11	570,110	837
7	Combustion Turbine Generator	50	11	570,110	837
8	Combustion Turbine Generator	50	11	570,110	837
9	Combustion Turbine Generator	50	11	570,110	837
10	Combustion Turbine Generator	50	11	570,110	837
11	Cooling Tower	45	15.7	225,000	102
12	Cooling Tower	45	15.7	225,000	102
13	Cooling Tower	45	15.7	225,000	102
14	Cooling Tower	45	15.7	225,000	102
15	Cooling Tower	45	15.7	225,000	102
16	Cooling Tower	45	15.7	225,000	102
17	Cooling Tower	45	15.7	225,000	102
18	Cooling Tower	45	15.7	225,000	102
19	Cooling Tower	45	15.7	225,000	102
20	Cooling Tower	45	15.7	225,000	102

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. Information used in this review was derived from the application, which was received on October 31, 2000, and supporting information received February 19, 2001. The source has submitted an Acid Rain Application, which was received on November 9, 2000.

Emissions Calculations

The emission calculations for the criteria pollutants and hazardous air pollutants (HAPs) are provided in Appendix A.

Potential to Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control

equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	PTE (tons/year) Turbines	PTE (tons/year) Cooling Towers	Total PTE
PM	35.1	0.0164	35.12
PM-10	35.1	0.0	35.1
SO_2	101.4	0.0	101.4
VOC	38.8	0.0	38.8
CO	1463.8	0.0	1463.8
NO_x	1490.5	0.0	1490.5

HAPS	Potential To Emit (tons/yr)
1,3 Butadiene	0.008
Acetaldehyde	0.738
Acrolein	0.118
Benzene	0.222
Ethylbenzene	0.591
Formaldehyde	13.108
PAHs	0.041
Propylene Oxide	0.535
Toluene	2.400
Xylene	0.480
Total	18.24
Napthalene	0.024

(a) The Potential to emit (as defined in 326 IAC 2-7-1 (29) of CO and NOx is equal to or greater than 100 tons per year. Therefore, the source is subject to the provision of 326 IAC 2-7.

(b) The Potential to emit (as defined in 326 IAC 2-7-1 (29) of any single HAP is equal to or greater than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1 (29) of a combination HAPS is greater than or equal to twenty-five (25) tons per year. However, the limited potential to emit of a single HAP is less than ten (10) tons per year and the limited potential to emit of the combination HAPs is less than twenty-five (25) tons per year, respectively, Therefore, the source is not subject to the provisions of 326 IAC 2-7 (Part 70 Permits).

(c) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are not applicable New source Performance Standard for particulate matter (PM) that were in effect on August 7, 1980, the fugitive particulate matter (PM) emissions are not counted toward determination of PSD and Emission offset applicability.

(d) Pursuant to 326 I AC 2-5.1-4, the source shall operate under the rules of a State Operating Permit, until they are issued a Title V Operating Permit.

Actual Emissions

No previous emission data has been received from the source because this is a **new** source.

Limited Potential to Emit

The following table summarizes the total potential to emit, reflecting all limits, of the significant emission units (fugitive PM and PM10 emissions are not counted towards the limited PTE).

Limited Potential to Emit (tons/year)							
Process/ facility	PM	PM10	SO_2	VOC	CO	NOx	Formaldehyde
Ten (10) turbines	5.83	5.83	16.77	6.49	240.57	247.86	2.18
Ten (10) cooling towers	0.027	0.027	0.00	0.00	0.00	0.00	0.00
Total Emissions	5.86	5.86	16.77	6.49	240.57	247.86	2.18

The new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2 AND 40 CFR 52.21, the PSD requirements do not apply.

Based on the potential to emit, all criteria pollutants are subject to PSD review. However, the source has decided to limit the emissions in order to maintain a minor source status. The limited potential to emit of the natural gas fired turbines, and cooling towers is based on determining the highest pollutant emission rate when burning natural gas. In this case NOx has the highest emissions rate of all criteria pollutants when burning natural gas. Therefore, by limiting the NOx emissions rate below 250 tons per year, the other criteria pollutants initially subject to PSD will also be less than 250 tons per year. In order to maintain a minor source status the source must maintain all criteria pollutants emissions below 250 tons per year. The Limited PTE indicated, are based on the NOx being limited to less than 250 tons per year.

Putnam Energy Center, LLC is proposing to construct and operate a simple cycle power generating

plant. The primary purpose of the facility is to generate electricity that will be produced by combustion turbine generators, and offered for sale. The fuel used will be natural gas delivered by pipeline. There will be not heat recovery from the exhaust gases from the gas turbines. Putnam Energy Center, LLC is submitting this permit application for an enforceable limitation on the amount of fuel combusted annually for the plant in simple cycle mode. The limitation will ensure that the maximum potential emissions will be below the major source threshold of 250 tons per year of the criteria pollutants.

County Attainment Status

This source is located in Putnam County

Pollutant	Status
PM-10	attainment
SO2	attainment
NOx	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Putnam County has been designated as attainment or unclassifiable for ozone. Therefore VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Putnam County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for PSD, 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 22 and since there are not applicable New Source Performance Standards or particulate matter (PM) that were in effect in August 1, 1980, the fugitive particulate matter (PM) emissions are not counted toward the determination of PSD and Emission applicability.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is subject to the part 70 Permit requirements because the potential to emit (PTE) of:

(a) at least one of the criteria pollutant is greater than or equal to 100 tons per year,

(b) a single hazardous air pollutant (HAP) is greater than or equal to 10 tons per year,

(c) any combination of HAPs is greater than or equal to 25 tons/year

This new source shall apply for a Part 70 (Title V) operating permit within twelve (12) months after this source becomes subject to Title V.

Federal Rule Applicability

40 CFR 60 Subpart GG (Stationary Gas Turbines):

Pursuant to 326 IACT 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to :

$$STD + 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NOx emissions(percent by volume at 15 percent oxygen on a dry basis).

Y = Manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of the fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NOx emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40CFR 60.332.

(2) limit sulfur dioxide emissions, as required by 40 DFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight;

(3) install a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine, as required by 40 CFR 60.334(a)

(4) report periods of excess emissions, as required by 40 CFR 334

40 CFR 72 (Acid Rain Program)

This source is subject to the requirements of the Acid Rain program, and shall be detailed in the Phase II Acid Rain Permit.

40 CFR 63 (National Emissions Standards for Hazardous Air Pollutants)

There are presently no proposed or final National Emissions Standards for Hazardous Air Pollutant (NESHAP) regulations for this source.

State Rule Applicability

326 IAC 1-6-3 (Preventive Maintenance)

(a) The Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after commencement of operation, including the following information on each:

(1) Identification of the individuals(s) responsible for inspecting, maintaining, and repairing emission units;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that lack of proper maintenance does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM and OAQ upon request and shall be subject to review and approval by IDEM and OAQ.

326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration Minor Source Status)

The total potential to emit of nitrogen oxides (NOx) and carbon monoxide (CO) for the facilities listed in this construction permit, are greater than 250 tons per year. The potential to emit, of the above listed pollutants is limited to less than 250 tons per year. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.

(a) Any change or modification which may increase the allowable emissions, potential emission, or potential to emit to the following:

(1) 25 tons per year or more (326 IAC 2-1),

(2) 100 tons per year or more, and greater than 10 tons per year for a single HAP or combustion of HAPs greater than 25 tons per year (326 IAC 2-7),

(3) 250 tons per year or more (326 IAC 2-2),

from the equipment covered in this construction permit, must be approved by the Office of Air Quality (OAQ) before such change may occur.

326 IAC 2-4.1-1 (New Source Toxics Control)

The New Source Toxics Control rule requires any new or reconstructed major source of hazardous air pollutants (HAPs) for which there is no applicable NESHAP to implement maximum achievable control technology (MACT), determined on a case-by-case basis, when the potential to emit is greater than 10 tons per year of any single HAP or 25 tons per year of any combination of HAP.

(a) The formaldehyde potential to emit shall be less than ten (10) tons per twelve (12) consecutive month period, rolled on a monthly basis.

(b) The combination of HAPS shall be less than twenty-five (25) tons per twelve (12) consecutive month period, rolled on a monthly basis.

Since NOx and CO are the limiting pollutants of this source, the NOx and CO limits established in the permit are sufficient to demonstrate compliance with the formaldehyde, manganese and the combination of HAPs limits established above. Therefore, the requirements of 326 IAC 2-4.1-1 (New source Toxics Control) do not apply.

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 2-6 (Emission reporting), because the source has the potential to emit more than 100 tons per year of at least one (1) regulated pollutant. Pursuant to this rule, the owner

or operator of this facility must annually submit an emission statement of the source. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

326 IAC 3-5 (Continuous Monitoring of Emissions)

The proposed electric generating plant is subject to 326 IAC 3-5 (Continuous Monitoring of Emissions) because the source has an emission limitation. Pursuant to 326 IAC 3-5-1(d)(1), the owner or operator of a new source with an emission limitation or permit requirement established under 325 IAC 2-5.1-3 and 2-6.1 shall be required to install, calibrate, certify, operate and maintain a continuous monitoring system for measuring CO emissions rates in pounds per hour from the ten (10) stacks in accordance with 326 IAC 3-5-2 and 326 IAC 3-5-3.

(a) The Permittee shall submit to IDEM, OAQ within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

(b) The Permittee shall record the output of the system shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(c) In instances of downtime, the source shall use emission factors determined from the most recent compliance test, based on the source's CEMS data to demonstrate compliance with the CO emission limit. The alternative emission factors shall be based upon collected monitoring system and/or approved performance test. In the event that the information submitted does not contain sufficient data to establish appropriate emission factors, the source shall continue to collect data until appropriate emission factors can be established.

This condition shall determine continuous compliance with the NOx and CO emission limits established in this permit to avoid 326IAC 2-2

326 IAC 5-1 (Opacity Limitations)

The proposed electric generation plant is subject to 326 IAC 5-1-1 (Opacity Limitations) because opacity, not including condensed water vapor, is emitted from the facilities at the source. Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period.

(b) Opacity shall not exceed sixty (60) percent for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a 6 hour period.

326 IAC 6-2 (Particulate Emissions Limitations for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-1(a) this rule establishes limitations for sources of indirect heating. Because this source's units are not utilized for indirect heating, this rule does not apply.

326 IAC 6-4 (Fugitive Dust Emission Limitations)

The proposed electric generation plant is subject to the requirements of 326 IAC 6-4 because this rule applies to all sources of fugitive dust. The source shall be considered in violation of this rule if any of the criteria presented in 326 IAC 6-4-2(1) through (4) are violated.

326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations)

The proposed electric generation plant is subject to the requirements of 326 IAC 6-5 because the proposed new plant must obtain a permit pursuant to 326 IAC 2.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

The ten (10) combustion turbines are subject to 326 IAC 7-1 because each unit has a potential to emit of 25 tons of SO2 per year. There are no applicable SO2 emissions limits, under this state rule established for the type of fuel used.

326 IAC 8-1-6 (New facilities; general reduction requirements):

Pursuant to 326 IAC 8-1-6 (New facilities; general reduction requirements), the requirements of BACT do not apply because the limited potential to emit of VOC of each turbine is less than 25 tons per year per unit. Based on the NO x emission limit, the limited VOC emissions are less than 25 tons per year per turbine. Compliance with the NOx emission limit

326 IAC 9 (Carbon Monoxide Emission Limit)

Pursuant to 326 IAC 9 (Carbon Monoxide Emission Limits), the source is subject to this rule because it is a stationary source which emits CO emissions and commenced operation after March 21, 1972. Under this rule, there is not a specific emission limit because the source is not an operation listed under 326 IAC 9-1-2.

326 IAC 10 (Nitrogen Oxides)

Pursuant to 326 IAC 10 (Nitrogen Oxides) this rule does not apply to the source because it is not located in the specified counties (Clark and Floyd) listed under 326 IAC 10-1-1.

Conclusion

The construction of the electric generating plant will be subject to the conditions of the attached proposed New Source Construction and Minor Source Operating Permit **No. CP- 133-12915-00003.**

Phase 1 - Simple Cycle Operation
Combustion Turbine Potential to Emit Calculations - Before Controls or Federally Enforceable Limits

Combustion Turbine Heat input @ 59 F **421.50** MMBtu/hr Number of Turbines **10**

	Normal Operation	Startup/Shutdown
Hours per year of Operation	**8760**	**292**

Combustion Turbine					
Pollutant	Heat Input	Emission Factor	lb/hr	PTE/CT	Total PTE
NO_X	421.5 MMBtu/hr	0.0362 lb/MMbtu	15.26	66.83 tons/yr	668.31 tons/yr
CO	421.5 MMBtu/hr	0.0177 lb/MMbtu	7.46	32.68 tons/yr	326.77 tons/yr
VOC	421.5 MMBtu/hr	0.0021 lb/MMbtu	0.89	3.88 tons/yr	38.77 tons/yr
SO_2	421.5 MMBtu/hr	0.0028 lb/MMbtu	1.18	5.17 tons/yr	51.69 tons/yr
PM_{10}	421.5 MMBtu/hr	0.0019 lb/MMbtu	0.80	3.51 tons/yr	35.08 tons/yr

Combustion Turbine Potential to Emit Calculation - After Control or Federally Enforceable Limits

Combustion Turbine					
Pollutant	Heat Input	Emission Factor	lb/hr	PTE/CT	Total PTE
NOx	421.50 MMBtu/hr	0.0362 lb/MMbtu	15.26	66.83 tons/yr	668.31 tons/yr
CO	421.50 MMBtu/hr	0.0177 lb/MMbtu	7.46	32.68 tons/yr	326.77 tons/yr
VOC	421.50 MMBtu/hr	0.0021 lb/MMbtu	0.89	3.88 tons/yr	38.77 tons/yr
SO_2	421.50 MMBtu/hr	0.0028 lb/MMbtu	1.18	5.17 tons/yr	51.69 tons/yr
PM_{10}	421.50 MMBtu/hr	0.0019 lb/MMbtu	0.80	3.51 tons/yr	35.08 tons/yr

Startup/Shutdown Emissions

Simple Cycle Operation

Estimated max hours of startup per year	250
Estimated max hours of shutdown per year	42

Emissions from Simple Cycle Operation (phase 1)				
Pollutant	Startup Emission Rate (lb/hr)	Shutdown Emission Rate (lb/hr)	Emission Rate/Turbine (tons/yr)	Total Emission Rate (tons/yr)
NO_X	236	142	32.482	129.928
CO	300	180	41.28	165.12

Combustion Turbine Potential to Emit Calculations for HAPs

Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lb/hr)	PTE/Turbine (tpy)	Total PTE (tpy)	Limited Total PTE (tpy)
Benzene	1.20E-05	0.0051	0.022	0.222	0.222
Formaldehyde	3.60E-04	0.1517	0.665	6.646	6.646
Xylenes	6.40E-05	0.0270	0.118	1.182	1.182
Ethylbenzene	3.20E-05	0.0135	0.059	0.591	0.591
1,3 Butadiene	4.30E-07	0.0002	0.001	0.008	0.008
Napthalene	1.30E-06	0.0005	0.002	0.024	0.024
Toluene	1.30E-04	0.0548	0.240	2.400	2.400
PAH	2.20E-06	0.0009	0.004	0.041	0.041
Acetaldehyde	4.00E-05	0.0169	0.074	0.738	0.738
			single HAP	6.65	6.65
			combined HAP	11.85	11.85

Combustion Turbine Potential to Emit Calculations for HAPs

Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lb/hr)	PTE/Turbine (tpy)	Total PTE (tpy)	Limited Total PTE (tpy)
Benzene	1.20E-05	0.0051	0.022	0.222	0.222
Formaldehyde	3.60E-04	0.1517	0.665	6.646	6.646
Xylenes	6.40E-05	0.0270	0.118	1.182	1.182
Ethylbenzene	3.20E-05	0.0135	0.059	0.591	0.591
1,3 Butadiene	4.30E-07	0.0002	0.001	0.008	0.008
Napthalene	1.30E-06	0.0005	0.002	0.024	0.024
Toluene	1.30E-04	0.0548	0.240	2.400	2.400
PAH	2.20E-06	0.0009	0.004	0.041	0.041
Acetaldehyde	4.00E-05	0.0169	0.074	0.738	0.738
			single HAP	6.65	6.65
			combined HAP	11.85	11.85

Air Quality Analysis

Introduction

Putnam Energy Center LLC (Putnam Energy) has applied for a construction permit to construct and operate an electric generating facility near Cloverdale in Putnam County, Indiana. The site is located at Universal Transverse Mercator (UTM) coordinates 515900.0 East and 4377569.0 North. The proposed facility would consist of 10 natural gas fired simple cycle combustion turbines. Putnam County is designated as attainment for the National Ambient Air Quality Standards. These standards for Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Carbon Monoxide (CO) and Particulate Matter less than 10 microns (PM_{10}) are set by the United States Environmental Protection Agency (U.S. EPA) to protect the public health and welfare.

The permit application was received by the Office of Air Quality (OAQ) on October 31, 2000. Due to public interest in electric generating facilities, an air quality analysis was performed. This document provides OAQ=s Air Quality Modeling Section's review of the construction permit application including an air quality analysis performed by the OAQ.

Air Quality Analysis Objectives

The OAQ review of the air quality impact analysis portion of the permit application will accomplish the following objectives:

A. Establish which pollutants require an air quality analysis based on source emissions.
B. Determine the ambient air concentrations of the source's emissions and provide analysis of actual stack height with respect to Good Engineering Practice (GEP).
C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS).

Summary

Putnam Energy has applied for a construction permit to construct and operate an electric generating facility, in Cloverdale in Putnam County, Indiana. Putnam County is currently designated as attainment for all criteria pollutants. Emission rates of two pollutants (Nitrogen Dioxide (NO_2) and Carbon Monoxide (CO)) associated with this minor source exceeded significant emission rates established in state and federal law, thus requiring air quality modeling. OAQ performed an air quality modeling analysis using SCREEN3 to determine if the source exceeded the NAAQs. The Nitrogen Dioxide (NO_2) results were greater than NAAQS level. Modeling results taken from the Industrial Source Complex Short Term (ISCST3) model showed pollutant impacts were predicted to be less than the significant impact levels and significant monitoring de minimis levels for purposes of a National Ambient Air Quality Standards analysis.

Part A - Pollutants Analyzed for Air Quality Impact

Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. CO, NO_x, SO_2, VOCs and PM_{10} will be emitted from Putnam Energy and an air quality analysis is required for CO and NO_x, both of which exceeded their significant emission rates as shown in Table 1. It should be noted that all emissions are based on limitations resulting from the OAQ review of the application.

TABLE 1 - SOURCE Significant Emission Rates (tons/yr)		
Pollutant	**Maximum Allowable Emissions**	**Significant Emission Rate**
CO	240.6	100.0
NO_x	247.9	40.0
SO_2	16.8	40.0
PM_{10}	5.9	15.0
VOC (ozone)	6.5	40.0

Significant emission rates are established to determine whether a source is required to conduct an air quality analysis. If a source exceeds the significant emission rate for a pollutant, air dispersion modeling is required for that specific pollutant. A modeling analysis for each pollutant is conducted to determine whether the source's modeled concentrations would exceed significant impact levels. Modeled concentrations below significant impact levels are not required to conduct further air quality modeling. Modeled concentrations exceeding the significant impact levels would be required to conduct more refined modeling which would include source inventories and background data. These procedures are defined in AGuidelines for Air Quality Maintenance Planning and Analysis, Volume 10, Procedures for Evaluating Air Quality Impacts of New Stationary Sources@ October 1977, U.S. EPA Office of Air Quality Planning and Standards (OAQPS).

Part B - Significant Impact Analysis

An air quality analysis, including air dispersion modeling, was performed to determine the maximum concentrations of the source emissions on receptors outside of the facility property lines. A worst-case approach for emission estimates has been taken due to the nature of the operational capability of the facility.

Model Description

The Office of Air Quality review first used SCREEN3 for Windows to get initial concentrations. The Nitrogen Dioxide (NO_2) concentration was greater than the NAAQS requiring more detailed modeling. OAQ then used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated April 10, 2000 to determine maximum off-property concentrations or impacts for each pollutant. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W AGuideline on Air Quality Models@. The Auer Land Use Classification scheme was referred to determine the land use in a 3 kilometer (1.9 miles) radius from the source. The area is considered primarily agricultural, therefore a rural classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects. Stacks associated with the proposed electric generating facility are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations coming from the stacks. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. These aerodynamic downwash parameters were calculated using U.S. EPA=s Building Profile Input Program (BPIP).

Meteorological Data

The meteorological data used in the ISCST3 model consisted of the latest five years of available surface data from the Indianapolis, IN National Weather Service station merged with the mixing heights from Peoria, IL Airport National Weather Service station. The 1990-1994 meteorological data was

purchased through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3-ready format with a version of U.S. EPA=s PCRAMMET.

Receptor Grid

Ground-level points (receptors) surrounding the source are input into the model to determine the maximum modeled concentrations that would occur at each point. OAQ modeling utilized receptor grids out to 10 kilometers (6.2 miles) for all pollutants. Dense receptor grids surround the property with receptors spaced every 100 meters (328 feet) out to 2 kilometers (1.25 miles), receptors spaced every 200 meters (656 feet) from 2 kilometers to 4 kilometers (2.5 miles), receptors spaced every 500 meters (1640 feet) from 4 kilometers to 10 kilometers (6.2 miles). Discrete receptors were placed 100 meters or 328 feet apart on Putnam Energy's property lines.

Modeled Emissions Data

The modeling used the emission rates listed in the technical support document of the permit. The modeling results reflect these emissions and are considered the controlling results for this air quality analysis.

Modeled Results

Maximum modeled concentrations for each pollutant over its significant emission rate are listed below in Table 2 and are compared to each pollutant=s significant impact increment for Class II areas, as specified by U.S. EPA in the Federal Register, Volume 43, No. 118, pg 26398 (Monday, June 19, 1978).

TABLE 2 - Summary of OAQ Significant Impact Analysis (ug/m3)

Pollutant	Year	Time-Averaging Period	Putnam Energy Maximum Modeled Impacts	Significant Impact Level	Significant Monitoring Levels
NO_2	1991	Annual - 8760 hrs/yr	0.07	**1.0**	14.0

With the Nitrogen Dioxide (NO_2) concentration under the significant impact level, no adverse affects are expected from Putnam Energy's proposed electric generating facility.